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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )

Federal-State Joint Board on )  
Universal Service )

CC Docket No. 96-45

Forward-Looking Mechanism )  
for High Cost Support for )  
Non-Rural LECS )

CC Docket No. 97-160

TO: The Commission

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INITIAL COMMENTS OF NEVADA BELL, PACIFIC BELL, AND  
SOUTHWESTERN BELL TELEPHONE COMPANY

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August 8, 1997

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## SUMMARY

With these Initial Comments and without waiving, prejudicing, or otherwise affecting any appeal or other recourse, the SBC LECs provides input on III.C.3 and 4 platform issues.

III.C.3.a: In light of the premise of this proceeding, there is no basis for the tentative conclusion that remote switches are more cost-effective than hosts or stand-alones. One cannot calculate with any accuracy a relationship of host-to-remote switches from the "Location Listing" in the 1996 depreciation filings, and cannot use this limited source to derive cost and efficiency assumptions. Moreover, the decision to use a remote involves a number of variables that are specific to the factual particulars being evaluated and weighed. Each of these variables are dependent upon the actual network deployed by the incumbent LEC making the decision, and not a hypothetical, stylized network. Accordingly, drawing a conclusion from those factually-intensive decisions mismatches and is fundamentally inconsistent with the stated objective of this proceeding. But even with a hypothetical network, those variables are too complex and too location-specific to be reduced to an algorithm. The models tend to oversimplify, and do not assess the impacts of customer demand, growth, interoffice implications, capacity restrictions, and maintenance and upgrade costs.

III.C.3.d: All port costs should be assigned to universal service, and usage costs should be assigned based on the percentage of local usage to total usage based upon actual usage and not model predictions. SWBT's typical local usage ranges from 70% to 80% of the total usage.

The Commission has correctly rejected the assumptions used by BCPM and Hatfield

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\* The abbreviations used in this Summary are as defined in the main text.

regarding the percentage of switch investment associated with a port. Actual port costs vary significantly depending upon switch type and manufacturer, as well as number of lines served. Given the likely use of a small geographic area than study areas for determining cost, it is unreasonable to assume a broad average for determining port costs. Accordingly, information associated with the Access Charge Reform proceeding may not provide sufficient detail. The Commission should not undertake a study on switching costs, but should use either data derived from the SCIS or actual LEC switching investment.

III.C.4: Interoffice trunking, signaling, and local tandem investment should be included in universal service costs. However, the Hatfield Model's methodology and inputs raise serious concerns as actual transport costs are substantially underestimated. Although the Hatfield Model calculates transport costs based upon existing switch locations, it then reduces the number of tandem switches without increasing transport costs. Moreover, by failing to allow for a tandem in each LATA, the Hatfield Model ignores legal and regulatory requirements and limitations, making it per se unreasonable.

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**INITIAL COMMENTS OF NEVADA BELL, PACIFIC BELL, AND  
SOUTHWESTERN BELL TELEPHONE COMPANY**

Nevada Bell, Pacific Bell, and Southwestern Bell Telephone Company (collectively, "SBC LECs") provide these Initial Comments in response to the Commission's Further Notice of Proposed Rulemaking ("FNPRM"), FCC 97-256, released July 18, 1997, which is aimed at creating a cost proxy model that will be used to size and distribute support from a federal high-cost universal service fund for non-rural local exchange carriers ("LECs").

The SBC LECs continue to believe that the use of actual costs is mandated by Section 254 and is otherwise reasonable. By filing these comments, none of the SBC LECs or any affiliate waives, prejudices, or otherwise adversely affects any appeal or other recourse from any Commission or State proceeding or action, including the Report and Order.<sup>1</sup>

In accordance with the FNPRM instructions, this pleading is structured in the same order as the FNPRM, including its heading and associated numbering.

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<sup>1</sup> *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Report and Order, FCC 97-157 (released May 8, 1997).

### **III. Modeling Forward-Looking Economic Cost**

#### **C. Platform Design Components and Input Values, para. 39**

##### **3. Switching, para 121.**

###### **a. Mix of Host, Stand-Alone, and Remote Switches, para. 121.**

In paragraph 121 of the FNPRM, the Commission expressed its concern that neither the Benchmark Cost Proxy Model ("BCPM") nor the Hatfield model distinguishes among types of switches (stand-alone, host, remote). Based solely upon an observation gleaned from incumbent LEC 1996 depreciation filings, the Commission appears to have tentatively concluded that remote switches are more cost-effective than hosts or stand-alones, and is requesting input to develop an algorithm for inclusion in the eventual cost proxy model. There is no basis for that tentative conclusion given the premise of this proceeding.

This premise that remote switches are more cost effective is based on that review of the 1996 depreciation filings -- more specifically, the "Location Listing" from those filings. Given the limited purpose and scope of that data source,<sup>2</sup> to use the "Location Listing" information for

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<sup>2</sup> The Common Carrier Bureau directs the development and distribution of the Depreciation Study Guide ("DSG"). This document sets the guidelines used by incumbent LECs to prepare a depreciation study. In accordance with the DSG, the "Location Listing" is a mandated exhibit for the switching (Electro-Mechanical, Electronic Analog, and Electronic Digital), Operator Systems, and mainframe Computers accounts. The Federal Communications Commission Depreciation Study Guide 1996, August 1995, Section F, F-6, para. 3. The data included on the "Location Listing" include the location name, type of office, number of units, number of equipped lines, year placed, investment, life span as of the study date, the final retirement date, and life weights. The contents of this list is intended for use in the calculation of the average year of final retirement ("AYFR"). The AYFR is an essential input to the life estimate computations for large unit accounts such as those listed above.

any purpose other than life calculations is questionable, but certainly does not justify or support "conclud[ing] that the host-remote arrangement is more cost-effective in many cases than employing stand-alone switches." FNPRM, para. 122. For example, the "Location Listing" does not designate which offices are hosts and which are stand-alones. Simply put, every non-remote switching location is not a host switch. Accordingly, it is impossible to calculate with any accuracy a relationship of host-to-remote switches from the "Location Listing." One simply cannot use this source to derive assumptions about the relative costs or efficiencies between hosts and remotes.

Drawing the tentative conclusion from the limited data is more fundamentally flawed in that the data is based upon the actual experience and networks of those incumbent LECs. In deciding whether to deploy a stand-alone, a host, or a remote, a number of variables that were specific to the factual particulars are evaluated and weighed. These variables include, but are not limited to, an analysis of "first costs,"<sup>3</sup> the current network architecture (e.g., type of switch, interoffice facilities); the cost of installation, maintenance and upgrades to accommodate a host/remote architecture; the costs and impacts of growth in the host and remote locations; and other factual and technical considerations and judgments. In some instances, decisions are made at the onset to accommodate known dynamics of the particular environment, including increasing customer sophistication and use of the network and the rapid evolution of technology. Each of these variables, any one of which can be critical to the final determination, are based

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<sup>3</sup> Defined as all of the expenses and costs to install a new switch, which would include the switch, software licenses, vendor and internal engineering, installation, modifications to power plant and distribution, and trunking.

upon the actual network deployed by incumbent LEC, and not upon some hypothetical, stylized network. Drawing a conclusion based upon such network experiences merely mismatches and is fundamentally inconsistent with the stated objective of this proceeding.

But even with a hypothetical network, those variables are too complex and too location-specific to be reduced to an algorithm. The models tend to oversimplify the decision-making process, relying most on an assessment of the per-line costs associated with each alternative. The models do not assess the impacts of customer demand and growth, interoffice implications, capacity restrictions and maintenance and upgrade costs.

To take capacity restrictions as an example, this area may be oversimplified or otherwise not fully appreciated. The capacity of the host limits the aggregate capacity of its remote(s). For example, if a host has a 50,000 line capacity, then its five remotes have in the aggregate a capacity of 50,000 no matter that each individual remote has a 20,000 line capacity. One cannot expand the host capacity by connecting another remote. Therefore, the limiting capacity of a host switch is in jeopardy as more remotes are tethered to it. Again, increasing customer usage and evolving technologies are changing the capacity paradigm rendering existing assumptions and algorithms invalid.

Marketing strategies by the switch vendors also exacerbate the analysis. Often times the initial required investments are minimized so that the vendor can get its foot into the door — in essence, you get a deal on the razor so that they can sell you the blades. Ongoing expenses and related upgrades can be extremely expensive and mitigate the initial discounts. Such variables cannot accurately be accounted for in a static algorithm, much less in a proxy environment



premised on fictitious networks.

d. Percent of Switch Assigned to Port and to Provision of Universal Service, para. 133

The SBC LECs agree with the tentative conclusions reached in paragraph 137 of the FNPRM. All of the port costs should be assigned to universal service. The usage costs should be assigned to universal service based on the percentage of local usage to total usage. However, this usage should be based on actual usage, and not the usage a model "predicts" on the network, as recommended by the Commission. Forecasted or predicted data may not accurately depict actual local switch usage. Typically, for Southwestern Bell Telephone Company ("SWBT"), local usage ranges from 70% to 80% of the total usage.<sup>4</sup>

The Commission correctly rejected the assumptions used by the BCPM and the Hatfield model regarding the percentage of switch investment that is associated with the port. Neither model accurately reflect the actual port costs that incumbent LECs incur for connecting the customer to the local switch. Both models assume an average level of port costs — Hatfield assumes 30 percent of the switching costs; BCPM assigns a percentage of switching costs based on the DEM factor. Such an assumption is too simplistic in that actual port costs may vary significantly among wire centers depending on the switch type and manufacturer. Additionally, the number of lines served by the switch can significantly impact the percentage of switching costs that are associated with the port. For any proxy model to accurately depict local switching costs, it would have to include input variables for switch type and lines served. The model

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<sup>4</sup> Arkansas, 69%; Kansas, 73%; Missouri, 80%; Oklahoma, 76%; Texas, 80%.

would also need to allow the user the capability to modify these variables on a wire center or location-specific basis.

Since universal service support will be targeted to geographic areas that are much smaller than study areas (wire centers, Census Block Groups), it is unreasonable to assume a broad average for determining port costs. The Commission suggests that it may use information filed in response to its Access Charge Reform proceeding for determining port costs. In their responses, however, incumbent LECs will not file rates for small geographic areas. The rates filed will be calculated on a study area basis or a per-company basis. Consequently, the information filed by LECs in response to the Access Charge Reform Order<sup>5</sup> to determine the percentage of investment allocated to the port function may not provide detail that is sufficient to correctly target universal service support. There is not a single percentage that can reasonably depict port costs for all switches deployed by LECs since, as stated, port costs will typically vary by switch type, manufacturer and the number of lines served.

The Commission asked for comments on whether it should undertake a detailed engineering study of several of the large host switches and smaller remote switches to ascertain what portion of the switch equipment are associated with the port function. The Commission also seeks comments on alternative data sources that are available for estimating current switching cost. FNPRM, para. 136. There is no need for the Commission to conduct such a study. LECs currently have cost models which can be used to calculate the percentage of port

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<sup>5</sup> *Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Transport Rate Structure and Pricing, End User Common Line Charges*, CC Docket Nos. 96-262, 94-1, 95-72, First Report and Order, FCC 97-158 (released May 16, 1997).

costs for switches currently being deployed by LECs as well as other switching costs incurred by LECs. SWBT uses data generated by Bellcore's Switching Cost Information System ("SCIS") to determine actual port cost percentages. These percentages could be provided to the Commission on a wire-center specific basis. An alternative source for switching costs is that the Commission could use the actual switching investments currently on the LECs books. If necessary, these investments could be restated to reflect current costs.

4. Interoffice Trunking, Signaling, and Local Tandem Investment, para. 139

The SBC LECs agree that "interoffice trunking, signaling, and local tandem facilities are an integral part of the network necessary to provide the supported services" and the selected mechanism should calculate associated costs. FNPRM, para. 141. The Commission concludes that the Hatfield algorithm employs a platform design that is at an adequate level of specificity and seeks comment on this conclusion.

Although interoffice trunking, signaling, and local tandem facilities are not the most significant portion of universal service costs, the SBC LECs have serious concerns with the methodology and inputs employed in the Hatfield model because it substantially underestimates SWBT's actual transport costs. The transport and tandem switching costs from SWBT's actual cost study are approximately \$211 million. The comparable amount generated by the Hatfield Model 3.1 is approximately \$100 million.

The SBC LECs have performed extensive analysis of the Hatfield model and inputs, and concluded that its calculation of tandem switching costs are inappropriate and inadequate. The Hatfield model begins with the tandem switch locations as they currently exist in incumbent

LEC networks. Trunking distances are calculated dependent upon the location of those switches, again as they exist. The model then applies an algorithm that reduces tandem switching capacity based on State-wide usage levels. The resultant network design and cost estimates are nonsensical.

First, the algorithm ignores legal and regulatory requirements and limitations. Under Hatfield Model 4.0, a tandem switch is assumed to perform both local and toll tandem functions, with a percentage of its costs being assigned to universal service for the local functions. Based upon the Hatfield algorithm, SWBT needs just 5.5 tandem switches to serve SWBT's approximate 8,700,000,000 access lines across the 16 Texas local area and transport areas ("LATAs"). However, the SBC LECs cannot legally use a single tandem to serve multiple LATAs, but must instead place at least one tandem in each LATA. In other words, SWBT must have at least 16 tandem switches in Texas. The result of the Hatfield model is a Texas network that cannot provide intraLATA toll or exchange access for most of the State! Such a network might not even be eligible for support given that access to interexchange service is part of the Commission's universal service definition. Any model that fails to take into account legal and regulatory requirements and limitations is per se unreasonable and must be rejected.

Even if SWBT could legally use only 5.5 tandems (whatever a .5 tandem is) to serve the 16 Texas LATAs and assuming that those 5.5 tandems had sufficient capacity to provide originating and terminating interstate and intrastate access, intraLATA toll service, and local tandem functions for all 16 LATAs, the Hatfield model only compounds its cost underestimate by failing to include any additional trunking to re-route traffic to those fewer tandem switches.

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Recall that the Hatfield model's trunking costs were based upon where those tandems now reside -- obviously if a tandem is eliminated or moved, additional costs are incurred to transport traffic to the new "serving" tandem. Neither the algorithm in particular nor the Hatfield model in general account for these additional costs. In essence, the algorithm just ignores the constraints already placed within Hatfield model.

Respectfully submitted,

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August 8, 1997

**CERTIFICATE OF SERVICE**

I, Jane A. Flanakin, hereby certify that the Initial Comments of Nevada Bell, Pacific Bell, and Southwestern Bell Telephone Company in CC Docket No. 96-45 and 97-160 have been served this 8th day of August, 1997 to the Parties of Record.

  
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August 8, 1997

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